AMENDMENT AFTER FINAL   JP920000257US1
August 2, 2005   Serial No. 09/943,341

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (cancelled)

2. (previously presented) An automatic method according to claim 15, wherein the step of computing the aggregated word score for said each word comprises:
computing a score for said each word according to linguistic salience of said each word to a user profile.

3. (previously presented) An automatic method according to claim 15, wherein the step of computing the aggregated word score for said each word comprises:
   computing a score for said each word according to similarities among said each word, a query and a provided topic.

4. (previously presented) An automatic method according to claim 15, wherein the step of computing the aggregated word score for said each word comprises:
   computing a score for said each word according to similarities among said each word and terms in titles of the documents.

5. (previously presented) An automatic method according to claim 15, wherein the step of computing the aggregated word score for said each word comprises:
   computing a score for said each word according to a ratio of an occurrence number for said each word in a document to a total occurrence number for said each word in the set of documents.

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6. (previously presented) An automatic method according to claim 15, wherein the step of computing the aggregated word score for said each word comprises:

   computing a score for said each word according to a ratio of a number of documents including said each word to a total number of documents in the set of documents.

7. (previously presented) An automatic method according to claim 15, wherein the step of computing the aggregated word score for said each word comprises:

   computing a score for said each word according to a weighted-average of at least two of:

   linguistic salience of said each word to a user profile;

   similarities among said each word, a query and a provided topic;

   similarities among said each word and terms in titles of the documents;

   a ratio of an occurrence number for said each word in a document to a total occurrence number for said each word in the set of documents; and

   a ratio of a number of documents including said each word to a total number of documents in the set of documents.

8. (cancelled)

9. (previously presented) A computer program product for automatically generating summaries according to claim 19, wherein the computer program code means for computing the aggregated word score for said each word comprises:

   computer program code means for computing a score for said each word according to linguistic salience of said each word to a user profile.

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10. (previously presented) A computer program product for automatically generating summaries according to claim 19, wherein the computer program code means for computing the aggregated word score for said each word comprises:

    computer program code means for computing a score for said each word according to similarities among said each word, a query and a provided topic.

11. (previously presented) A computer program product for automatically generating summaries according to claim 19, wherein the computer program code means for computing the aggregated word score for said each word comprises:

    computer program code means for computing a score for said each word according to similarities among said each word and terms in titles of the documents.

12. (previously presented) A computer program product for automatically generating summaries according to claim 19, wherein the computer program code means for computing the aggregated word score for said each word comprises:

    computer program code means for computing a score for said each word according to a ratio of an occurrence number for said each word in a document to a total occurrence number for said each word in the set of documents.

13. (previously presented) A computer program product for automatically generating summaries according to claim 19, wherein the computer program code means for computing the aggregated word score for said each word comprises:

    computer program code means for computing a score for said each word according to a ratio of a number of documents including said each word to a total number of documents in the set of documents.

14. (previously presented) A computer program product for automatically generating summaries according to claim 19, wherein the computer program code means for computing the aggregated word score for said each word comprises:

  computer program code means for computing a score for said each word according to a weighted-average of at least two of:

    linguistic salience of said each word to a user profile,

    similarities among said each word, a query and a provided topic,

    similarities among said each word and terms in titles of the documents,

    a ratio of an occurrence number for said each word in a document to a total occurrence number for said each word in the set of documents, and

    a ratio of a number of documents including said each word to a total number of documents in the set of documents.

15. (currently amended) An automatic method for generating summaries for text documents, comprising steps of:

  generating a set of sentences for a set of documents by document discourse analysis and a set of words by morphologic process;

  initializing a word score for each word in the set of words, a sentence score for each sentence in the set of sentences and a score sum;

  computing an aggregated word score for said each word according to an aggregate of sentence scores of sentences containing said each word and to a degree of correlation between said each word and user related information;

  computing an aggregated sentence score for said each sentence according to an aggregate of word scores composing said each sentence and a respective sentence position in a section and a paragraph;

  comparing an aggregate sum with said score sum, said aggregate sum being a sum of aggregated word scores and aggregated sentence scores; and

  if said aggregate sum [[of]] is different than said score sum, ~~replacing said score sum with said aggregate sum, each said word score with a corresponding said aggregated~~

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~~word score, each said sentence score with a corresponding said aggregated sentence score~~
~~and~~ returning to the step of computing the aggregated word score; otherwise,

      outputting top-ranked sentences according to sentence score as a summary of the set of documents, top-ranked words according to word score as a keywords list of the set of documents.

16. (previously presented) An automatic method according to claim 15, wherein document discourse analysis comprises identifying titles, sections, lists, paragraph boundaries and sentence boundaries of the documents.

17. (previously presented) An automatic method according to claim 7, wherein said aggregated word score (SCORE[w]) has a weighted (λ) relationship with each of said aggregated sentence score (SCORE[s]), linguistic salience of said each word to a user profile (salience(w, user summarization profile)), similarities among said each word, a query and a provided topic (salience(w, user's query or topic)), similarities among said each word and terms in titles of the documents (salience(w, tile words)), a ratio of an occurrence number for said each word in a document to a total occurrence number for said each word in the set of documents (FREQUENCY(w/d)/FREQUENCY(w/D)), and a ratio of a number of documents including said each word to a total number of documents in the set of documents (NUMBER(d, d∋w)/ NUMBER(D)), of the form

$$
\begin{aligned}
\text{SCORE}[w] = &\lambda_1 * \text{salience}(w, \text{user summarization profile}) \\
&+ \lambda_2 * \text{salience}(w, \text{user's query or topic}) \\
&+ \lambda_3 * \Sigma(\text{SCORE}[s], s \ni \omega) \\
&+ \lambda_4 * \text{salience}(w, \underline{\text{title}} \; [[\text{tile}]] \; \text{words}) \\
&+ \lambda_5 * \text{FREQUENCY}(w/d)/\text{FREQUENCY}(w/D) \\
&+ \lambda_6 * \text{NUMBER}(d, d \ni w)/ \text{NUMBER}(D).
\end{aligned}
$$

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18. (previously presented) An automatic method according to claim 17, wherein said aggregate sentence score further has a weighted relationship with each of said aggregated word score, sentence position (position(s, d)) and similarity (similarity(s, S)) of the form SCORE[s]=λ_7*Σ(SCORE[w], s$\ni$w)+λ_8*position(s, d)+λ_9*similarity(s, S).

19. (previously presented) A computer program product for automatically generating summaries for text documents, said computer program product comprising a computer usable medium having computer readable program code thereon, said computer readable program code comprising:

computer program code means for generating a set of sentences for a set of documents by document discourse analysis and a set of words by morphologic process;

computer program code means for initializing a word score for each word in the set of words, a sentence score for each sentence in the set of sentences and a score sum;

computer program code means for computing an aggregated word score for said each word according to an aggregate of sentence scores of sentences containing said each word and computing a degree of correlation between said each word and user related information;

computer program code means for computing an aggregated sentence score for each sentence in the set of sentences according to an aggregate of word scores composing it and a respective sentence position in a section and a paragraph;

computer program code means for computing an aggregate sum from aggregated word scores and aggregated sentence scores;

computer program code means for determining if said aggregate sum is different than said score sum and for selectively replacing said score sum with said aggregate sum, each said word score with a corresponding said aggregated word score and each said sentence score with a corresponding said aggregated sentence score; and

computer program code means for outputting top-ranked sentences according to sentence score as a summary of the set of documents, top-ranked words according to word score as a keywords list of the set of documents.

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20. (previously presented) A computer program product for automatically generating summaries according to claim 19, wherein computer program code means for generating a set of sentences for a set of documents by document discourse analysis comprises computer program code means for identifying titles, sections, lists, paragraph boundaries and sentence boundaries of the documents.

21. (previously presented) A computer program product for automatically generating summaries according to claim 14, wherein said aggregated word score (SCORE[w]) has a weighted (λ) relationship with each of said aggregated sentence score (SCORE[s]), linguistic salience of said each word to a user profile (salience(w, user summarization profile)), similarities among said each word, a query and a provided topic (salience(w, user's query or topic)), similarities among said each word and terms in titles of the documents (salience(w, tile words)),a ratio of an occurrence number for said each word in a document to a total occurrence number for said each word in the set of documents (FREQUENCY(w/d)/FREQUENCY(w/D)), and a ratio of a number of documents including said each word to a total number of documents in the set of documents (NUMBER(d, d∋w)/ NUMBER(D)), of the form

$$
\begin{aligned}
SCORE[w] = &\lambda_1 * salience(w, \text{user summarization profile}) \\
&+ \lambda_2 * salience(w, \text{user's query or topic}) \\
&+ \lambda_3 * \Sigma(SCORE[s], s \ni \omega) \\
&+ \lambda_4 * salience(w, \underline{title} \, [[tile]] \text{ words}) \\
&+ \lambda_5 * FREQUENCY(w/d)/FREQUENCY(w/D) \\
&+ \lambda_6 * NUMBER(d, d \ni w)/ NUMBER(D).
\end{aligned}
$$

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22. (previously presented) A computer program product for automatically generating summaries according to claim 21, wherein said aggregate sentence score further has a weighted relationship with each of said aggregated word score, sentence position (position(s, d)) and similarity (similarity(s, S)) of the form

$$SCORE[s]=\lambda_7*\Sigma(SCORE[w], s \ni w)+\lambda_8*position(s, d)+\lambda_9*similarity(s, S).$$

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